

WHAT IS CLAIMED IS:

1. A submerged hollow fiber large membrane module, comprising:

[I] a module body divided into two sections which has a permeated
5 water collection space 5 for collecting water filtered through hollow fiber
membranes and a permeated water outlet 3 for discharging the water
collected in the permeated water collection space;

[II] module support tubes which are vertically connected to the
upper and lower ends of the module body, respectively;

10 [III] a plate type module header insertion layer which is provided
with hollow fiber membrane spaces 10, and is inserted into the module
body to form the permeated water collection space 5 in the module body;

[IV] a plate type diffusion layer which is provided at an upper
portion thereof with a diffusion port 4, has diffusion tubes 11
15 surrounding a bundle of hollow fiber membranes 16 by three surfaces
while keeping a predetermined distance from module headers, and is
inserted into the module body subsequent to the module header insertion
layer to form a diffusion space 7 within the module body; and

[V] the module headers which have the bundle of hollow fiber
20 membranes 16 fixed therein by a potting liquid 22 and are inserted into
the module header insertion layer, the bundle of hollow fiber membranes
being opened in parallel to permeated water discharge surfaces of both
opposite ends so as to form the permeated water collection space 5 in the

module body.

2. The submerged hollow fiber membrane module of claim 1,
wherein the permeated water collection space 5 in the module body is
5 formed between an outside wall of the module body and the plate type
module header insertion layer inserted into the module body.

3. The submerged hollow fiber membrane module of claim 1,
wherein the diffusion space 7 in the module body is formed between the
10 plate type diffusion layer inserted into the module body and an inside
wall of the module body.

4. The submerged hollow fiber membrane module of claim 1,
wherein an interspace 6 is formed between the permeated water
15 collection space 5 and the diffusion space 7.

5. The submerged hollow fiber membrane module of claim 1,
wherein the distance between the module headers and the diffusion
tubes arranged adjacent thereto is 1 to 20cm.

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6. The submerged hollow fiber membrane module of claim 1,
wherein a multiplicity of diffusion holes is formed on the diffusion tubes
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7. The submerged hollow fiber membrane module of claim 6, wherein the diameter of the diffusion holes is 2 to 8mm.

5 8. The submerged hollow fiber membrane module of claim 6, wherein the diameter of the diffusion holes disposed on the diffusion tubes 11 increases by 10 to 100% as compared to the diameter of the diffusion holes disposed directly above.

10 9. The submerged hollow fiber membrane module of claim 1, wherein the tensile strength of the hollow fiber membranes 16 constituting a hollow fiber membrane bundle is higher than 1kg/piece.

15 10. The submerged hollow fiber membrane module of claim 1, wherein the hollow fiber membranes 16 constituting a hollow fiber membrane bundle are composite hollow fiber membranes having a tensile strength higher than 10kg/piece made by reinforcement by braided fabric.

20 11. The submerged hollow fiber membrane module of claim 1, wherein the shape of the module body is cylindrical or rectangular.

12. The submerged hollow fiber membrane module of claim 1,

wherein a connecting member for coupling the two submerged hollow fiber membranes modules disclosed in claim 1 is disposed on the air injection port 4.

- 5 13. The submerged hollow fiber membrane module of claim 12, wherein the connecting member has a passage for communicating permeated water and air between the two module headers serially coupled to each other and the diffusion tubes.

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